



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200
Fax 613 632-5246

U/R
SAD
19/08/13

6F9540V00131

Job Sheet 198828



POSITIVE RECALL

Part No: 6F9540V00131

Job Qty: 1 pcs

Part Name: AW169 Upper Cutter Deflector Assembly



Part Weight: 0 lbs

Status: New

Job Created: 8/6/19

Job Tracking No:

Due Date: 12/20/19

Created By: Marie Lajeunesse

Type: SOLD

Description:

Note: URF18-746 DWG REV C IPP REV:A 13.11.13 NEW ISSUE DD VERF:JLM

Ship Via:

EFFECTIVE *13/08/13* AUTH *SAD*RELEASED *55* DATE *MAR 27 2020*
9-89

Priority: Medium

Concession Required

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard	Workcenter/Supplier	Sign-off
					Setup Run Hrs Hrs	Workcenter / Supplier Lead Time	
110	Packaging 1 - Pick Kit	1 pcs	12/20/19	0.00	0.00	Packaging 1 - 1	<i>DAS</i> <i>72</i> <i>9-89</i>
						Packaging 1 - 2	
						Packaging 1 - 3	
						Packaging 1 - 4	
						Packaging 1 - 5	
						Packaging 1 - 6	
						Packaging 1 - 7	
						Packaging 1 - 8	
						Packaging 1 - 9	
						Packaging 1 - 10	
						Packaging 1 - 11	
						Packaging 1 - 12	
						Packaging 1 - 13	
						Packaging 1 - 14	
						Packaging 1 - 15	
						Packaging 1 - 16	
						Packaging 1 - 17	
						Packaging 1 - 18	
						Packaging 1 - 19	
						Packaging 1 - 20	
						Packaging 1 - 21	
						Packaging 1 - 22	
						Packaging 1 - 23	
						Packaging 1 - 24	
						Packaging 1 - 25	
						Packaging 1 - 26	
						Packaging 1 - 27	
						Packaging 1 - 28	
						Packaging 1 - 29	
						Packaging 1 - 30	
						Packaging 1 - 31	

Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
CANADA
TEL: 1 613 632-5200
Email: sales@dartaero.com
www.dartaero.com



Container No: S260925



Part: 6F9540V00131

Job No: 198828

Serial No/Batch: S260925

Revision:

Inspector:

Exp Date:

Instructions:

Date: 03/04/20

Concession

Plex 8/6/19 3:09 PM Dart.lajeunesse.marie

					Packaging 1 - 32	
					Packaging 1 - 33	
					Packaging 1 - 34	
					Packaging 1 - 35	
					Packaging 1 - 36	
111	Packaging 1-1 - Pick Kit - B4B	1 pcs	12/20/19	0.00 0.00	Packaging 1 - 1 - B4B	DAS 69 9-89
					Packaging 1 - 2 - B4B	
					Packaging 1 - 3 - B4B	
					Packaging 1 - 4 - B4B	
					Packaging 1 - 5 - B4B	
					Packaging 1 - 6 - B4B	
					Packaging 1 - 7 - B4B	
					Packaging 1 - 8 - B4B	
					Packaging 1 - 9 - B4B	
					Packaging 1 - 10 - B4B	
					Packaging 1 - 11 - B4B	
					Packaging 1 - 12 - B4B	
					Packaging 1 - 13 - B4B	
					Packaging 1 - 14 - B4B	
					Packaging 1 - 15 - B4B	
					Packaging 1 - 16 - B4B	
					Packaging 1 - 17 - B4B	
					Packaging 1 - 18 - B4B	
					Packaging 1 - 19 - B4B	
					Packaging 1 - 20 - B4B	
					Packaging 1 - 21 - B4B	
					Packaging 1 - 22 - B4B	
					Packaging 1 - 23 - B4B	
					Packaging 1 - 24 - B4B	
					Packaging 1 - 25 - B4B	
					Packaging 1 - 26 - B4B	
					Packaging 1 - 27 - B4B	
					Packaging 1 - 28 - B4B	
					Packaging 1 - 29 - B4B	
					Packaging 1 - 30 - B4B	
					Packaging 1 - 31 - B4B	
					Packaging 1 - 32 - B4B	
					Packaging 1 - 33 - B4B	
					Packaging 1 - 34 - B4B	
					Packaging 1 - 35 - B4B	
					Packaging 1 - 36 - B4B	
120	QC 4	1 pcs	12/20/19	0.00 0.00	QC 4 - 28	DAS 72 9-89
					QC 4 - 58	
					QC 4 - 69	
					QC 4 - 9	
					QC 4 - 46	
					QC 4 - 68	
					QC 4 - 72	
					QC 4 - 74	
					QC 4 - 75	
130	Packaging 3-1 - Stock - B4B	1 pcs	12/20/19	0.00 0.00	Packaging 3 - 1 - B4B	
					Packaging 3 - 2 - B4B	
					Packaging 3 - 3 - B4B	
					Packaging 3 - 4 - B4B	
					Packaging 3 - 5 - B4B	
					Packaging 3 - 6 - B4B	
					Packaging 3 - 7 - B4B	
					Packaging 3 - 8 - B4B	
					Packaging 3 - 9 - B4B	
					Plex 8/6/19 3:09 PM Dart.lajeunesse.marie	

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					Packaging 3 - 10 - B4B											
					Packaging 3 - 11 - B4B											
					Packaging 3 - 12 - B4B											
					Packaging 3 - 13 - B4B											
					Packaging 3 - 14 - B4B											
					Packaging 3 - 15 - B4B											
					Packaging 3 - 16 - B4B											
					Packaging 3 - 17 - B4B											
					Packaging 3 - 18 - B4B											
					Packaging 3 - 19 - B4B											
					Packaging 3 - 20 - B4B											
					Packaging 3 - 21 - B4B											
					Packaging 3 - 22 - B4B											
					Packaging 3 - 23 - B4B											
					Packaging 3 - 24 - B4B	DAS 72										
					Packaging 3 - 25 - B4B	9-89										
					Packaging 3 - 26 - B4B											
					Packaging 3 - 27 - B4B											
					Packaging 3 - 28 - B4B											
					Packaging 3 - 29 - B4B											
					Packaging 3 - 30 - B4B											
					Packaging 3 - 31 - B4B											
					Packaging 3 - 32 - B4B											
					Packaging 3 - 33 - B4B											
					Packaging 3 - 34 - B4B											
					Packaging 3 - 35 - B4B	DAS 21										
					Packaging 3 - 36 - B4B	9-89										
135	DC - 1 - B4B	1 pcs	12/20/19	0.00 0.00	DC - 1 - B4B											
					DC - 2 - B4B											
140	QC 21 - FG	1 pcs	12/20/19	0.00 0.00	QC 21 - FG - 21	DAS 21										
					QC 21 - FG - 70	9-89										
					QC 21 - SA - 53											
Part Op 110 - (Pick Kit) Descriptions: 120 - (QC4- 100% Inspect kits for completeness) 130 - (Identify as per dwg & Stock Location: _____) Identify and pack for shipping as per PPP 6F9540V00131 135 - (Document Control) Photocopy bluefile per PPP D169-841-013 chg002 and create labels per 6F9540V00131 CHG002 140 - (QC21- Final Inspection - Work Order Release)																
Job BOM <table border="1"> <thead> <tr> <th>Part / Item</th><th>Component Name</th><th>Quantity</th><th>Operation</th><th>Container</th></tr> </thead> <tbody> <tr> <td>D169-841-013</td><td>AW169 Upper Cutter Deflector</td><td>1 pcs (1 ea)</td><td>110-Packaging 1 - Pick Kit</td><td>5253656</td></tr> </tbody> </table>							Part / Item	Component Name	Quantity	Operation	Container	D169-841-013	AW169 Upper Cutter Deflector	1 pcs (1 ea)	110-Packaging 1 - Pick Kit	5253656
Part / Item	Component Name	Quantity	Operation	Container												
D169-841-013	AW169 Upper Cutter Deflector	1 pcs (1 ea)	110-Packaging 1 - Pick Kit	5253656												
Job Allocations <table border="1"> <thead> <tr> <th>Operation</th><th>Component Part</th><th>Required</th><th>Inventory</th><th>Allocated</th></tr> </thead> <tbody> <tr> <td>110-Packaging 1 - Pick Kit</td><td>D169-841-013</td><td>1</td><td>1</td><td>0</td></tr> </tbody> </table>							Operation	Component Part	Required	Inventory	Allocated	110-Packaging 1 - Pick Kit	D169-841-013	1	1	0
Operation	Component Part	Required	Inventory	Allocated												
110-Packaging 1 - Pick Kit	D169-841-013	1	1	0												
Part Specifications Specifications could not be found.																

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Entered: _____ Date: _____



WORK ORDER NON-CONFORMANCE / ROUTE UPDATE

NCR No. _____

Route update only ☐

Job: _____ Part No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐	DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Eng. (Non-AW) ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Engineering ☐ Water Jet ☐ Supplier ☐ Quality ☐			
Date :	Sequence #:	QTY Affected :		MRB (QSI042)	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor	
Root Cause Operator ☐ Manufacturing Process ☐ Equip/Tooling ☐ Handling/Presservation ☐ Material ☐ Product Improvement ☐ Process Improvement ☐ Human Factors ☐ ☐ Pressure/Forced ☐ Bending ☐ Crushing ☐ Cracks ☐ Crimp/Kink/Ripple/Wave/Twist ☐ Marks/Chatter ☐ Mislabeled ☐ Contamination ☐ Misaligned/off center ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Incomplete/Unclear Instructions ☐ Drill Holes ☐ Fit/Function ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain Direction ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set/Set-up ☐ Positioned Wrong ☐ Outside Tolerance ☐ Drawing ☐ Finish ☐ Part Lost/Missing ☐ Misread		Other/Details:			

Entered: _____ Date: _____



WORK ORDER NON-CONFORMANCE / ROUTE UPDATE

NCR No.

Route update only

Job: <u>198828</u>		DISPOSITION		DEPARTMENT/PROCESS			
Part No. <u>6F9540V00131</u>		Rework ☐ Scrap ☐ Use-as-is ☐		Skid-tube ☐ Machining ☐ Large Fab ☐	Cross tube ☐ Small Fab ☐ Finishing ☐	Eng. (Non-AW) ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐	Engineering ☐ Water Jet ☐ Supplier ☐ Quality ☐
Date :		Sequence #:		QTY Affected :		MRB (QSI042) DAS 51 19/08/13 9-89	
Description Work Order Deviation				Disposition			
Concession required before shipping for the following Parts D4824-1 D4823-1 D4857-1 D4944-1 D4824-1				Acceptable to ship with approved Concession			
Root Cause				FAULT CATEGORY			
Operator ☐ Manufacturing Process ☐ Equip/Tooling ☐ Handling/Presservation ☐ Material ☐ Product Improvement ☐ Process Improvement ☐ Human Factors ☐				☐ Pressure/Forced ☐ Bending ☐ Crushing ☐ Cracks ☐ Crimp/Kink/Ripple/Wave/Twist ☐ Marks/Chatter ☐ Mislabeled ☐ Contamination ☐ Misaligned/off center ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Incomplete/Unclear Instructions ☐ Drill Holes ☐ Fit/Function ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain Direction ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set/Set-up ☐ Positioned Wrong ☐ Outside Tolerance ☐ Drawing ☐ Finish ☐ Part Lost/Missing ☐ Misread			
				Other/Details:			

		Concessione Fornitore				PAGINA 1 di 2	STAB. EMITTENTE Vergiate
NC Fornitore N.	AWC-039	Data	20.03.2020	Concessione	400000090350	Ordine	4801939434
P/N	6F9540V00131			Grado/Categoria	NC	Rev. disegno	
Descrizione Parte	PROTECTR, CCP ASSY UPPER			Quantità Lotto	4,000	Q.tà sotto conc.	4,000
Coordinatore NC	GIORGIO BENZONI			A/C Model	AW6		
Fornitore	DART AEROSPACE LTD			Contratto			
Difetto MA01 - Materiale diverso dal richiesto - * 20.03.2020 09:26:16 GIORGIO BENZONI (39851) * See supplier concession AWC-039 attached Causa del Difetto Ripetitività (stesso P/N-Cod.Difetto) NO ☐ SI ☒ (11)							
Valutazioni e proposte dell'ENGINEERING							
Valutazioni dell'Engineering compresi input dell'Esperto:				Rapp. Indagine n.	Rapp. Rispondenza n.		
* 23.03.2020 18:02:50 GENNARO MARGIOTTA (5907) * Considering the assessment and assumptions made by the supplier engineering the deviation is accepted. * Mark the part with concession number in order to keep trace of the Segue in 2° pag. Classificazione Deviazione dal Type Design secondo EASA part 21A.91: Minore/B							
Effetti del difetto				Limitazioni			
	Prima eventuale riparazione	Dopo eventuale riparazione		☐ Si (specificare) ☒ NO			
Sicurezza	☐ Si	☐ Si	☐ No				
Vita o durata	☐ Si	☐ Si	☐ No				
Resistenza	☐ Si	☐ Si	☐ No				
Prestazioni	☐ Si	☐ Si	☐ No				
Intercambiabilità	☐ Si	☐ Si	☐ No				
Affidabilità	☐ Si	☐ Si	☐ No				
Manutenibilità	☐ Si	☐ Si	☐ No				
Installabilità	☐ Si	☐ Si	☐ No				
Testabilità	☐ Si	☐ Si	☐ No				
Solo aspetto	☐ Si	☐ Si	☐ No				
Nessun effetto	☒ Si	☐ Si	☐ No				
Proposte di recupero:				Decisione di Impiego ☐ Usare riparato con riparazione specifica ☐ Usare riparato con riparazione nota ☒ Usare com'è ☐ Usare riparato per prove (vedi Limitaz.) ☐ Usare com'è per prove (vedi Limitazioni) ☐ Scartare			
Classificazione Concessione	☐ MAGGIORE ☒ MINORE		Ripresentare dopo riparazione		☐ Si ☒ No		
Marcatura	☐ NO ☒ SI		Metodo: Indelible ink pen				
ATE	GENNARO MARGIOTTA		CPE			Data	23.03.2020
Verifiche e prove da effettuare							
Registraz. della riparazione	Con Ordine (WO) di riparazione ☐			Numero:			
Valutazione Riparazione:							
Decisioni finali							
S/N	Usare com'è (UTI)	Usare riparato (RIL)	Scartare (SCA)	S/N	Usare com'è (UTI)	Usare riparato (RIL)	Scartare (SCA)
S253884	☒	☐	☐		☐	☐	☐
S260095	☒	☐	☐		☐	☐	☐
S260925	☒	☐	☐		☐	☐	☐
S261048	☒	☐	☐		☐	☐	☐
	☐	☐	☐		☐	☐	☐
	☐	☐	☐		☐	☐	☐
	☐	☐	☐		☐	☐	☐
	☐	☐	☐		☐	☐	☐
	☐	☐	☐		☐	☐	☐
Non Serializzati	Q.tà Usare com'è	4,000	Q.tà Usare riparato		Q.tà Scartare		
Funzione	ATE AW	CPE AW	Verifica della Riparazione	Qualità	Cliente	MOD/Rappresent. Istituzionale	
Firma	GENNARO MARGIOTTA			GIORGIO BENZONI			
Data	23.03.2020			26.03.2020			

NC Fornitore N.	AWC-039	Data	20.03.2020	Concessione	400000090350	Ordine	4801939434
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CAUSE DEL DIFETTO

- * C8C5 Metodo e Processi

VALUTAZIONI DELL'ENGINEERING

deviation.

- * The deviation must be mentioned by Dart during the process of the validation for change design.

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	June 2018	

Supplier NC Number	AWC-039	Date	March 16,2020	LH NC Number	400000090350	Purchase Order	4801939434
LH PN	6F9540V00131	S/N / Batch N.	S261048 S253884 S260925 S260095	Grade/ Criticality	NC	LH DWG issue	B
P/N Description	Protector, CCP Assembly Upper			Batch Qty	4	Defective Qty	4
Supplier Name	Dart Aerospace LTD					Model	AW169
Defect(s) Description							

1. Gasket material for D4857-041 found on the D169-841-013 (LH PN 6F9540V00131) upper cutter deflector kit has been discontinued by the manufacturer.
2. D4857-041 (2x) and D4944-1 (4x), P/N 6F9540V00131, to be supplied without the 4x 5.33mm holes drilled per drawing. The operation of drilling is to be performed by a Leonardo operator as per attached production permit.
3. The material of the D4823-1 upper cutter deflector and D4824-1 upper cutter mount was deviated from the approved data. The parts were manufactured using aluminum plate per AMS-QQ-A-250/12 instead of aluminum bar. The substantiation for the deviation provided in the attached engineering evaluation.
4. The grain direction on the D4823-1 upper cutter deflector and D4824-1 upper cutter mount deflector was deviated from the approved Data. The substantiation for the deviation is provided in the attached engineering evaluation.

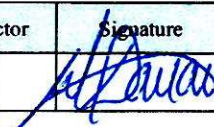
Department	Inspector	Signature	Date
Quality Assurance	55 9-89		March 16, 2020

Defect(s) Cause

1. Discontinued 8623K358 / 8623K338 gasket material.
2. Due to issue regarding QJ 200001282441 Dart Aerospace Drawing requirements and requirements specified in Leonardo's 3D model parts are to be supplied to Leonardo without the Ø5.33mm / Ø.210" holes drilled per drawing D4857. Previous parts provided the hole pattern do not match the A/C structure.
3. To facilitate manufacture, Dart would like to modify the material on the approved drawing to manufacture the parts using aluminum plate per AMS-QQ-A-250/12.
4. To minimize material waste, Dart would like to modify the grain direction on the approved drawing.

Department	Inspector	Signature	Date
Quality Assurance	55 9-89		March 16, 2020

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Corrective Action				
Dart requests Leonardo Helicopters to accept the modified parts as described in this Concession. Dart is in the process of updating the drawings for approval by Leonardo Helicopters for future production.				
Department	Inspector	Signature	Date	Foreseen implementation date
Quality Assurance	DAS 55 9-89		March 16, 2020	

Concession	QRS-107_F01 Issue 02	Page 3/3
	June 2018	

For Suppliers approved as "MANUFACTURER" only

Supplier ENGINEERING evaluation and proposal

Investigation Report n: NCR17-6591

Compliance Report n.
.....

1. Part number DSP1135M will replace the existing material. DSP1135M meets ASTM D1056, AMS3195, Mil-R-46089, Mil-R-6130, and Mil Std 670 TE12 Specifications. The material callouts on D5117 drawings have been updated to reflect this. No other change to design or certification data is required. This change is classified by Dart Aerospace as a minor change
2. No design changes. Removing the holes from the D4857-041 Deflectors and having them drilled during installation will prevent mismatched holes during installation.
3. In reference to Structural Substantiation Report DA169-4 page 48, the cable cutter system (CCS) was analysed using 7075-T6 aluminum sheet AMS-QQ-A-250/12. Therefore, manufacture of CCS parts using AMS-QQ-A-250/12 material has no effect on the structural substantiation.
4. Per DA169-4, the minimum margin of safety for the D4823-1 Upper Cutter Deflector and D4824-1 Upper Cutter Mount is 0.15 (page 66, 15 degree cutting strike on mount) which corresponds with a maximum stress of 61.9 ksi.
5. In reference to MMPDS-07 Tables 3.7.9.0 (b2) & (b3), the minimum yield strength of AMS-QQ-A-250/12 plate between 0.250"-2.000" thick in either the L or LT grain direction is 64 ksi (7075-T62 in longitudinal grain direction).
Repeating the margin of safety calculation in DA169-4 for 64 ksi material strength:

$$MS = (\text{Yield Strength} / \text{Maximum Load}) - 1$$

$$= (64 \text{ ksi} / 61.9 \text{ ksi}) - 1$$

$$= 0.03$$

The margin of safety is positive. Therefore, the grain direction can be rotated in the L – LT plane with no effect on the strength substantiation of the D4823

Defect Effects			Limitations after repair
	Before any repair	After any repair	
Safety	☐ yes	☐ yes ☐ no	☐ yes (specify) ☐ no
Life	☐ yes	☐ yes ☐ no	
Strength	☐ yes	☐ yes ☐ no	
Performance	☐ yes	☐ yes ☐ no	
Interchangeability	☐ yes	☐ yes ☐ no	
Reliability	☐ yes	☐ yes ☐ no	
Maintainability	☐ yes	☐ yes ☐ no	
Installability	☐ yes	☐ yes ☐ no	
Only Aspect	☐ yes	☐ yes ☐ no	

Repair Proposal